WHAT WE CLAIM IS:

1. A method of processing a fat-containing bean having a shell portion and an inner portion, for producing reduced fat solids having polyphenols, comprising extracting the fat from the inner portion to produce reduced fat solids, wherein the fat-containing bean comprises an initial amount of at least one active polyphenol, and nonfat solids from the reduced fat solids further comprise a post-processing amount of the at least one active polyphenol, wherein the ratio of initial amount to post-processing amount is less than or equal to 2.

2. The method of claim 1, wherein the ratio of initial amount to post-processing amount is equal to or greater than 1.

3. The method of claim 1, wherein the ratio of initial amount to post-processing amount is less than 1.3.

4. The method of claim 1, wherein the ratio of initial amount to post-processing amount is less than 1.1.

5. The method of claim 1, wherein the fat-containing bean is a cocoa bean and the solids are reduced fat cocoa solids.

6. The method of claim 1, wherein the nonfat solids have a total polyphenol concentration greater than 20,000 ug/g.

7. The method of claim 1, wherein the nonfat solids have a total polyphenol concentration greater than 25,000 ug/g.

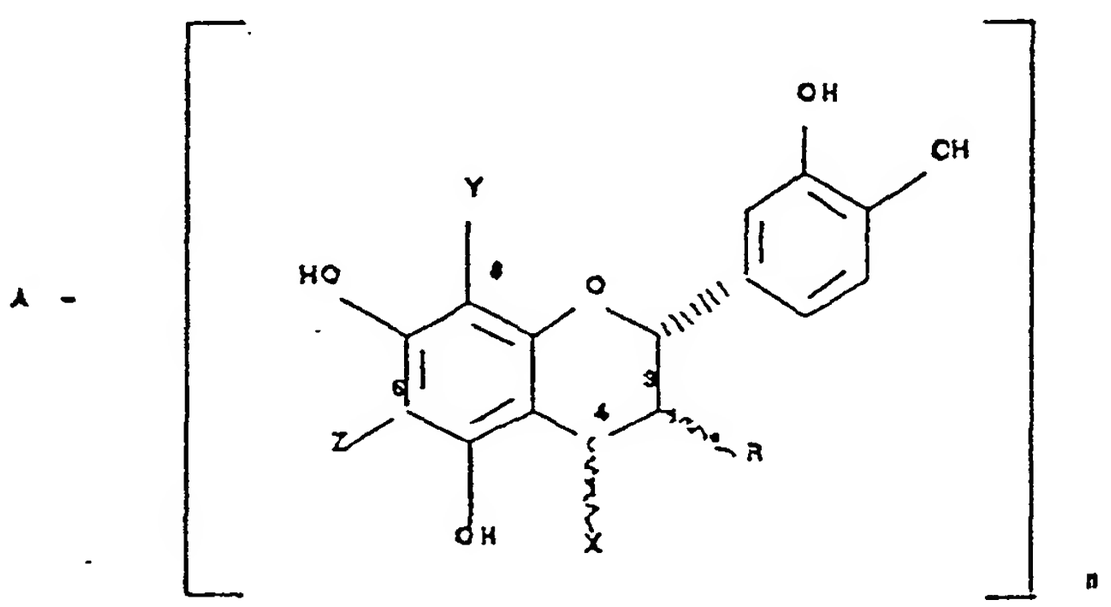
8. The method of claim 1, wherein the nonfat solids have a total polyphenol concentration greater than 28,000 ug/g.

9. The method of claim 1, wherein the nonfat solids have a total polyphenol concentration greater than 30,000 ug/g.

10. The method of claim 5, further comprising selecting the cocoa bean to optimize the initial amount of the at least one active polyphenol therein.

11. The method of claim 10, wherein the selecting further comprises selecting a cocoa bean sample having slaty or purple beans.

12. The method of claim 5, wherein the at least one active polyphenol has the formula:



wherein:

n is an integer from 3 to 12, such that there is a first monomeric unit A, and a plurality of other monomeric units;

R is 3-(α)-OH, 3-(β)-OH, 3-(α)-O-sugar, or 3-(β)-O-sugar;

position 4 is alpha or beta stereochemistry;

X, Y and Z represent positions for bonding between monomeric units, with the provisos that as to the first monomeric unit,

bonding of another monomeric unit thereto is at position 4 and Y = Z = hydrogen, and, that when not for bonding monomeric units, X, Y and Z are hydrogen or Z, Y are sugar and X is hydrogen, or X is alpha or beta sugar and Z and Y are hydrogen, or combinations thereof; and

the sugar can be optionally substituted with a phenolic moiety via an ester bond.

13. The method of claim 12, wherein the polyphenol comprises a pentamer compound having n equal to 5, and a concentration based on the pentamer compound to the nonfat solids is greater than 1000 ug/g.

14. The method of claim 12, wherein the polyphenol comprises a pentamer compound having n equal to 5, and a concentration of the pentamer compound in the nonfat solids is greater than 1500 ug/g.

15. The method of claim 5, wherein the method further comprises the step of bean cleaning.

16. The method of claim 15, wherein the bean cleaning comprises using an air fluidized bed density separator.

17. The method of claim 15, wherein the method further comprises the step of removing the shell portion from the inner portion prior to extracting.

18. The method of claim 5, wherein the method further comprises the step of heating the bean to a temperature sufficient to separate the shell portion from the inner portion.

19. The method of claim 5, wherein the fat is extracted without the use of a liquor grinding step or a roasting step.

20. The method of claim 17, wherein the method further comprises the step of winnowing.

21. The method of claim 20, wherein the winnowing comprises using an air fluidized-bed density separator.

22. The method of claim 5, wherein extracting the fat comprises screw pressing.

23. The method of claim 5, wherein extracting the fat comprises solvent extraction.

24. The method of claim 18, wherein the temperature is an internal bean temperature at or below 105°C.

25. The method of claim 18, wherein the heating comprises infra-red heating.

26. A method of processing a fat-containing bean having a shell portion and an inner portion, for producing a fat-containing product, comprising the steps of:

drying the bean; and

extracting the fat from the inner portion to produce a fat-containing product without a roasting step or a liquor-grinding step.

27. The method of claim 26, wherein the fat-containing bean is a cocoa bean, and the fat-containing product is cocoa butter.

28. The method of claim 27, wherein the method further comprises selecting the cocoa bean to optimize production of cocoa butter.

29. The method of claim 28, wherein the obtaining further comprises selecting the cocoa bean sample having brown to slaty beans.

30. The method of claim 29, wherein the selecting comprises obtaining a cocoa bean sample having brown beans.

31. The method of claim 27, wherein the cocoa butter is extracted without a liquor-grinding step or a roasting step.

32. The method of claim 27, wherein the method further comprises the step of bean cleaning.

33. The method of claim 32, wherein the bean cleaning comprises the use of an air fluidized bed density separator.

34. The method of claim 27, wherein the method further comprises the step of removing the shell portion from the inner portion prior to extracting.

35. The method of claim 27, wherein the method further comprises the step of winnowing.

36. The method of claim 35, wherein the winnowing comprises the use of an air fluidized bed density separator.

37. The method of claim 27, wherein extracting the fat comprises screw pressing.

38. The method of claim 27, wherein extracting the fat comprises solvent extraction.

39. The method of claim 38, wherein the method further comprises deodorization following solvent extraction.

40. The method of claim 27, wherein the drying is at an internal bean temperature between 100 to 110°C.

41. The method of claim 27, wherein the drying comprises infra-red heating.

42. A method of processing a fat-containing bean having a shell portion and an inner portion, for producing reduced fat solids having polyphenols and fat-containing products, comprising extracting the fat from the inner portion to produce reduced fat solids and fat-containing products, wherein the fat-containing bean comprises an initial amount of at least one active polyphenol, and nonfat solids from the reduced fat solids further comprise a post-processing amount of the at least one active polyphenol, wherein the ratio of initial amount to post-processing amount is less than or equal to 2.

43. The method of claim 42, wherein the ratio of initial amount to post-processing amount is equal to or greater than 1.

44. The method of claim 42, wherein the ratio of initial amount to post-processing amount is less than 1.3.

45. The method of claim 42, wherein the ratio of initial amount to post-processing amount is less than 1.1.

46. The method of claim 42, wherein the fat-containing bean is a cocoa bean and the solids are reduced fat cocoa solids.

47. The method of claim 42, wherein the nonfat solids have a total polyphenol concentration greater than 20,000 ug/g.

48. The method of claim 42, wherein the nonfat solids have a total polyphenol concentration greater than 25,000 ug/g.

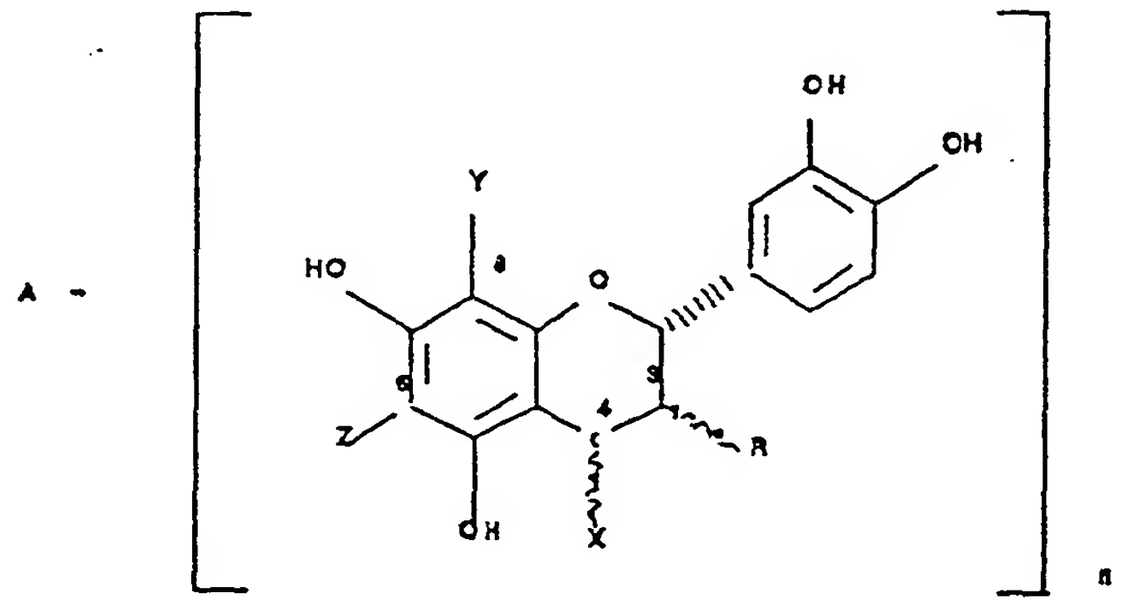
49. The method of claim 42, wherein the nonfat solids have a total polyphenol concentration greater than 28,000 ug/g.

50. The method of claim 42, wherein the nonfat solids have a total polyphenol concentration greater than 30,000 ug/g.

51. The method of claim 46, further comprising selecting the cocoa bean to optimize the initial amount of at least one active polyphenols therein.

52. The method of claim 51, wherein the cocoa bean is slaty or purple.

53. The method of claim 46, wherein the at least one active polyphenol has the formula:



wherein:

n is an integer from 3 to 12, such that there is a first monomeric unit A, and a plurality of other monomeric units;

R is 3-(α)-OH, 3-(β)-OH, 3-(α)-O-sugar, or 3-(β)-O-sugar;

position 4 is alpha or beta stereochemistry;

X, Y and Z represent positions for bonding between monomeric units, with the provisos that as to the first monomeric unit, bonding of another monomeric unit thereto is at position 4 and Y = Z = hydrogen, and, that when not for bonding monomeric units, X, Y and Z are hydrogen or Z, Y are sugar and X is hydrogen, or X is alpha or beta sugar and Z and Y are hydrogen, or combinations thereof; and

the sugar can be optionally substituted with a phenolic moiety via an ester bond.

54. The method of claim 53, wherein the polyphenol comprises a pentamer compound having n equal to 5, and a concentration of the pentamer compound in the nonfat solids is greater than 1000 ug/g.

55. The method of claim 53, wherein the polyphenol comprises a pentamer compound having n equal to 5, and a concentration of the pentamer compound based in the nonfat solids is greater than 1500 ug/g.

56. The method of claim 46, wherein the method further comprises the step of bean cleaning.

57. The method of claim 56, wherein the bean cleaning comprises using an air fluidized bed density separator.

58. The method of claim 46, wherein the method further comprises the step of removing the shell portion from the inner portion prior to extracting.

59. The method of claim 58, wherein the method further comprises the step of heating the bean to a temperature sufficient to separate the shell portion from the inner portion.

60. The method of claim 46, wherein the fat is extracted without the use of a liquor grinding step or a roasting step.

61. The method of claim 46, wherein the method further comprises the step of winnowing.

62. The method of claim 61, wherein the winnowing comprises using an air fluidized bed density separator.

63. The method of claim 46, wherein extracting the fat comprises screw pressing.

64. The method of claim 46, wherein extracting the fat comprises solvent extraction.

65. The method of claim 64, wherein the method further comprises butter deodorization following solvent extraction.

66. The method of claim 59, wherein the temperature is an internal bean temperature between 95 and 135°C.

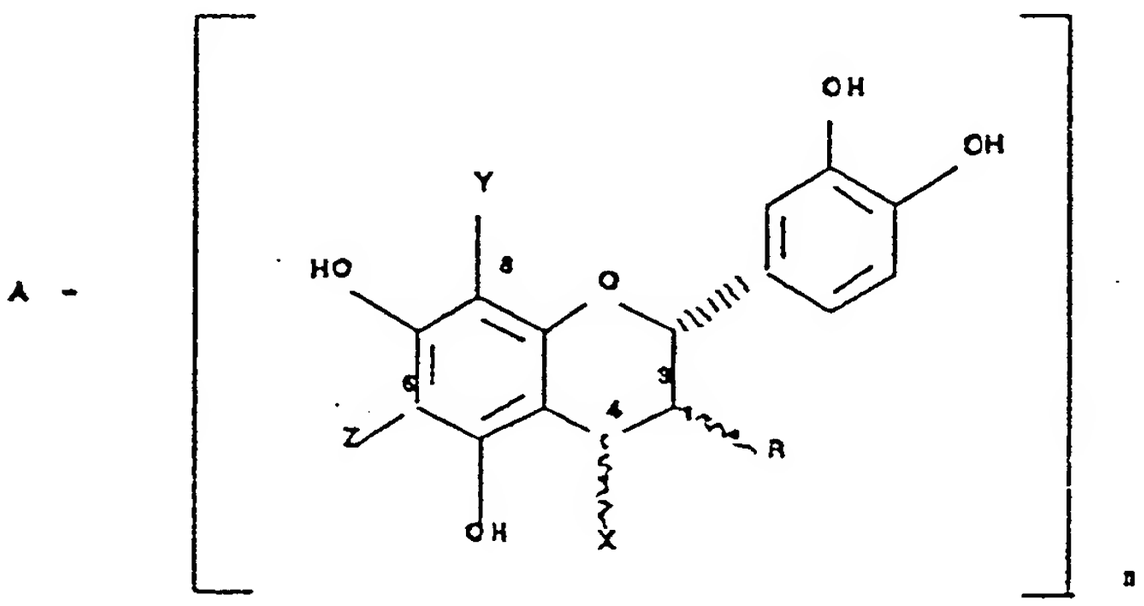
67. The method of claim 66, wherein the internal bean temperature is between 100 and 105°C.

68. The method of claim 59, wherein the heating comprises infra-red heating.

69. The method of claim 66, wherein the bean is not heated above 135°C for a period of time greater than 5 minutes.

70. The method of claim 67, wherein the bean is not heated above 105°C for a period of time greater than 5 minutes.

71. A reduced fat cocoa solid composition derived from a cocoa bean comprising at least one active polyphenol of the formula:



wherein:

n is an integer from 3 to 12, such that there is a first monomeric unit A, and a plurality of other monomeric units;

R is 3-(α)-OH, 3-(β)-OH, 3-(α)-O-sugar, or 3-(β)-O-sugar; position 4 is alpha or beta stereochemistry;

X, Y and Z represent positions for bonding between monomeric units, with the provisos that as to the first monomeric unit,

bonding of another monomeric unit thereto is at position 4 and Y = Z = hydrogen, and, that when not for bonding monomeric units, X, Y and Z are hydrogen or Z, Y are sugar and X is hydrogen, or X is alpha or beta sugar and Z and Y are hydrogen, or combinations thereof; and

the sugar can be optionally substituted with a phenolic moiety via an ester bond; and

wherein the cocoa bean comprises an initial amount of the at least one active polyphenol, and nonfat solids from the reduced fat cocoa solid composition further comprise a post-processing of the at least one active polyphenol, wherein the ratio of initial amount to post-processing amount is less than or equal to 2.

72. The composition of claim 71, wherein the ratio of initial amount to post-processing amount is equal to or greater than 1.

73. The composition of claim 71, wherein the ratio of initial amount to post-processing amount is less than 1.3.

74. The composition of claim 71, wherein the ratio of initial amount to post-processing amount is less than 1.1.

75. The composition of claim 71, wherein the post-processing amount of the at least one active polyphenol, with respect to nonfat cocoa solids, is conserved with respect to the initial amount of the at least one active polyphenol in a cocoa bean from which the nonfat cocoa solid is derived.

76. The composition of claim 71, wherein nonfat cocoa solids have a total polyphenol concentration greater than 20,000 ug/g.

77. The composition of claim 71, wherein the nonfat cocoa solids have a total polyphenol concentration greater than 25,000 ug/g.

78. The composition of claim 71, wherein the nonfat cocoa solids have a total polyphenol concentration greater than 28,000 ug/g.

79. The composition of claim 71, wherein the nonfat cocoa solids have a total polyphenol concentration greater than 30,000 ug/g.

80. The composition of claim 71, wherein the polyphenol comprises a pentamer compound wherein n is 5, and a concentration of the pentamer compound in the nonfat solids is greater than 1000 ug/g.

81. The composition of claim 71, wherein the polyphenol comprises a pentamer compound wherein n is 5, and a concentration of the pentamer compound in the nonfat solids is greater than 1500 ug/g.

82. The composition of claim 71, wherein the composition is an edible composition.

83. The composition of claim 82, wherein the composition is chocolate.

84. An antineoplastic composition comprising the composition of claim 71 and optionally a carrier or diluent.

85. An antioxidant composition comprising the composition of claim 71 and optionally a carrier or diluent.

86. An antimicrobial composition comprising the composition of claim 71 and optionally a carrier or diluent.

87. An Nitric Oxide (NO) or NO-synthase modulating composition comprising the composition of claim 71 and optionally a carrier or diluent.

88. A cyclo-oxygenase and/or lipoxygenase modulator composition comprising the composition of claim 71 and optionally a carrier or diluent.

89. An *in vivo* glucose-modulating composition comprising the composition of claim 71 and optionally a carrier or diluent.

90. A method of treating a subject in need of treatment with an antineoplastic agent comprising administering to the subject an antineoplastic composition of claim 84.

91. A method of treating a subject in need of treatment with an antioxidant composition comprising administering to the subject an antioxidant composition of claim 85.

92. A method of treating a subject in need of treatment with an antimicrobial agent comprising administering to the subject an antimicrobial composition of claim 86.

93. A method of treating a subject in need of treatment with a Nitric Oxide (NO) NO or NO-synthase modulating agent comprising administering to the subject a NO or NO-synthase modulating composition of claim 87.

94. A method of treating a subject in need of treatment with a cyclo-oxygenase and/or lipoxygenase modulator comprising administering to the subject a cyclo-oxygenase and/or lipoxygenase modulating composition of claim 88.

95. A method of treating a subject in need of treatment with an *in vivo* glucose-modulating agent comprising administering an *in vivo* glucose modulating composition of claim 89.

96. A method of winnowing beans comprising separating shells from an inner bean portion of the beans using an air fluidized-bed density separator.

97. The method of claim 96, wherein the air fluidized-bed density separator comprises a means for homogenizing material introduced therein and at least one vibratory screen.

98. The method of claim 97, wherein the air fluidized-bed density separator further comprises three vibratory screens.

99. The method of claim 96, wherein the beans are subjected to a heat treatment prior to winnowing to loosen the shells from the inner bean portion.

100. The method of claim 96, wherein greater than 99.5% of the shells are removed.

101. The method of claim 96, wherein the beans are cocoa beans.

102. The method of claim 96, wherein less than 1.1% of the inner bean portion by weight are removed with the shell.